

Application No. 09/990,849

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Remarks

Claims 1-4, 8-19 and 21-26 remain in this application. Claims 5-7 and 20 have been cancelled. Claims 1-4, 17 and 21 have been amended. Claims 1, 9 and 17 are independent claims.

A. Allowable Subject Matter

In an Office action dated August 15, 2003, claims 9-16 were identified as being allowed. The allowed claims describe an x-ray imager for generating an image of an object.

B. Rejection under 35 U.S.C. 102

Claims 1-8 and 17-26 were rejected under 35 U.S.C. 102(b) as being anticipated by Jalink, Jr. et al. (hereinafter "Jalink"). In response, Applicant has amended independent claims 1 and 17 to more clearly distinguish the claimed invention from the cited prior art.

Applicant requests reconsideration of claims 1-8 and 17-26 in view of the amendments to the claims.

C. Patentability of Amended Claim 1

Applicant respectfully asserts that the Jalink patent does not anticipate the imaging system described in amended claim 1. To briefly state the standard, rejections under Section 102 are proper only when the claimed subject matter is identically disclosed or described in the prior art, so that there are no physical differences. In re Marshall, 198 USPQ 344 (CCPA 1978). By adding the description of the "integrating unit for computationally combining the sub-images on the basis of data that includes angular data indicative of projection angles and positional data indicative of relative positions," the claimed imaging system and the system of Jalink include physical differences.

In claim 1, the system includes detecting modules "controlled such that each detecting module provides a succession of sub-images in which at least some of the sub-images in the succession overlap with respect to imaging common portions of the sample of interest." This allows the use

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of the angular data and the positional data in the process of computational combining of the sub-images. As noted on page 13, lines 12-33 of the application as originally filed, a composite three-dimensional image of a sample of interest may be formed by capturing image information regarding a common area employing different detecting modules at different demographic angles.

In the Jalink system, angular data indicative of projection angles during imaging of common portions of a sample is not utilized by an integrating unit. Within the description of the "sensor means," the Jalink patent states that the CCD arrays "can have any shape and length so long as they are separated by a distance equal to the dimension of the arrays along each axis of motion minus an allowance for overlap of approximately 10 pixels between sub-images generated by each CCD in both directions" (Jalink: column 4, lines 7-12). This specific description is repeated in column 4, lines 29-34, after the description of a CCD array of 1024 pixels by 1024 pixels. Thus, in the limitation of an overlap of approximately 10 pixels, the "allowance" is less than one percent of the example dimension. The minor overlap is not used in generating "angular data indicative of projection angles of the imaging radiation during the imaging of the common portions of the sample of interest."

In view of the amendment to claim 1, it is respectfully submitted that the Jalink patent does not present a *prima facie* case of anticipation under Section 102. Moreover, Applicant asserts that the claimed imaging system would not be obvious under Section 103, so that the independent claim and its dependent claims are allowable over the prior art.

D. Patentability of Amended Claim 17

Claim 17 has been amended to describe the method as including (1) "associating individual sub-images with axial direction information indicative of projection angles of x-ray radiation," (2) "associating the individual sub-images with position information indicative of relative locations of the source" of the x-ray radiation in acquiring the individual sub-images, and (3) "utilizing the axial direction information and the position information in determining the formation of the image" of the sample of interest. Applicant asserts that the teachings of Jalink do not render amended claim 17 unpatentable.

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Original claim 20 included description which was less clear, but directly related to the features that have been added to amended claim 17. Specifically, original claim 20 described the steps of associating each of the sub-images with axial direction information and axial position information. In rejecting claim 20 under Section 102(b), the Office action cited column 4, lines 26-44 of Jalink. In this portion of the patent, it is stated that the CCD arrays may have dimensions of 1024 x 1024 pixels and that the length (22) between neighboring CCD arrays is equal to the length (23) of one side of the square array. However, the arrays can have any shape and length, so long as they are separated by a distance equal to the dimension of the arrays along each axis of motion minus an allowance for overlap of approximately 10 pixels between sub-images generated by each CCD in both directions. The patent also states that in order to provide a complete and contiguous image, four x-ray exposures are made, with each having the 10 pixel overlap allowance.

As seen in Fig. 2a of Jalink, different CCD arrays (15) will have different projection angles with respect to receiving radiation. However, the patent does not anticipate associating individual sub-images with axial direction information indicative of the projection angles. It follows that the processing of the sub-images does not include "utilizing said axial direction information and said position information in determining formation of said image" of the sample of interest.

It is asserted that amended claim 17 is patentable over the teachings of Jalink. The method of Jalink is specifically intended for use in detecting precancerous tissue within a human. While there is some overlap in sub-images, the intent is to minimize the overlap, since it increases the exposure of a patient to x-ray radiation. For example, in column 5, lines 3-7, the patent notes that the patient receives only a small amount of additional exposure from x-rays in the narrow borderline area that surrounds each array, so that the patient dosage is increased by only a small percentage. Since the overlap is minimized, the projection angles are not recorded and the patent provides no motivation for modifying its teachings to more closely approach Applicant's invention, as described in amended claim 17.

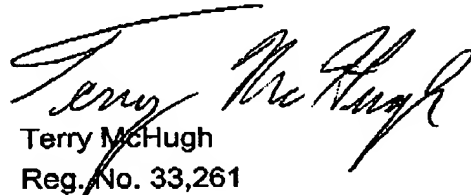
Applicant respectfully requests reconsideration of the claims in view of the amendments and remarks made herein. A notice of allowance is earnestly solicited. In the case that any issues regarding this application can

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be resolved expeditiously via a telephone conversation, Applicant invites the Examiner to call Terry McHugh at (650) 969-8458.

Respectfully submitted,


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